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REPORT OF THE COMMITTEE ON SECONDARY SCHOOL GEOGRAPHY

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THE expression "the new geography" is now so infrequently heard that it may be of value to remind ourselves of its former significance. The appointment by the National Education Association in 1892 of the Committee of Ten was an important event in the development of school subjects in general, and of geography in particular.

The report of the Conference on Secondary School Geography crystallized and gave definite and authoritative expression to the belief, which for a number of years previous to this had been a conviction on the part of the few leaders in the subject, that earth science should be a broader, deeper, more helpful study than it then was. It regarded the subject not as a mere description of the most striking features of man's physical environment, but as a study of the evolution of environment, and its relations to human conditions. It recognized the fact that if geography was to maintain a place in the secondary school as a subject for serious study, it must experience a decided change in character. As the laboratory method was being used with success in chemistry, physics, and the biological sciences, it was considered wise to apply it to geography.

The close relations between geology and geography, the fact that the former was quite well organized and that there was material available for laboratory work, together with the personnel of the Conference, all combined to give the movement a decided trend in the direction of geology or physiography. Because there were no text-books that treated the subject from the new point of view, the Conference recommended that physical geography, along the lines then followed, be presented in the first year of the high school, and physiography or geology in the last year.

In 1895 there appeared the first modern American physical geography. It presented geographic forms and processes very fully, but practically speaking, with the exception of a brief chapter used in the nature of a summary and entitled "Man and Nature," it ignored their influences upon human life.

A comparison of this book with its predecessors, as well as with the more recent texts, is very interesting. The earlier books devoted considerable space to a description of the surface features of the several continents. Comparatively little attention was given to the origin and classification of land forms, while there was practically no reference to human response to its environment. Their treatment of the atmosphere was much briefer and less valuable than it was in the text published in 1895.

In 1897 the Science Section of the National Education Association appointed a committee of nine to consider physical geography in secondary schools. The report of this committee, made the following year, was in general along the lines laid down by the Geography Conference. It is interesting to note that of the five men who signed the report, three were professors of geology. The report states that "the subject should be carefully held to the leading idea of the physical environment of man." The committee favored elective courses in geology and meteorology.

There has been marked advance in the subject of physical geography during the past sixteen years. We have now more than one half dozen good texts, and as many laboratory manuals. Our equipment has been improved and teachers are receiving special training along this line in our normal schools, colleges and universities.

In spite of this great advance there has been for several years a growing dissatisfaction with the course as at present organized. It is becoming increasingly evident that it does not meet existing needs. The appointment, by the Science Section of the National Education Association in July, 1908, of a committee to report upon the essentials of a course in geography for secondary schools, is but one expression of this lack of satisfaction with present conditions. The Association of American Geographers, at its meeting held in Baltimore a few months ago, appointed a committee for the same purpose, while a large number of articles dealing with the question have appeared in the JOURNAL OF GEOGRAPHY during the past two years. While the decided advance which secondary school geography has made is recognized by all, the feeling is general among teachers of the subject and school authorities that the results are far from satisfactory. The next step in the evolution of the subject, a step to be

taken in the near future, will be of greater importance than that inaugurated sixteen years ago.

Although the economic and commercial phases of geography are receiving an increasing amount of attention, secondary school geography is to-day practically physiography. Therefore, unless otherwise specified, all references here made to geography as now taught in the high schools have to do with this division of the subject. The following are the more important reasons for considering a change in the nature of the course imperative:

1. The course, as at present organized, places too much emphasis upon the detailed study and classification of land forms, and too little upon human response to those forms. The amount of space devoted to the lands by the various physical geographies varies from forty per cent. to seventy-six per cent. of the total. The criticism here made, however, is not that too much space is devoted to the lands, as one of the four great divisions of physical geography, but that the lands are not sufficiently studied from the geographic point of view, namely, the human.

2. A concrete study of human response to its environment does not receive sufficient attention. This point has reference to all of the divisions of the subject. Your committee recognizes the fact that a comprehensive study of this subject, as applied to large areas, is impossible in a brief course devoted to physical geography. The omission of such study from secondary school geography is a serious matter, however. A careful examination of our texts will show that the facts and principles stated are given scant application to concrete areas. The newer books show an improvement over the old ones in this respect.

3. The course aims to fit the student for college rather than for the affairs of life. Secondary school geography, as a part of our educational scheme, should agree with the latter in so far as general function is concerned. In other words, it should aim to render the greatest possible service in preparing the student to meet successfully the opportunities and obligations of life. The fulfilling of college entrance requirements—a matter which now receives serious attention—should receive practically no consideration. The soundness of this statement becomes evident when it is remembered that only about ten per cent. of the total enrollment in public and private high schools graduate. In other words, practically *all* graduates of secondary schools enter at once upon some business, some profession, or the duties of home life. It is to these students, more than ninety per cent. of the total number, that the secondary school should

devote itself heart and soul. The popular, but false conception, that the high school should place great emphasis upon meeting college entrance requirements in geography as well as in other subjects, is responsible for certain conditions in the curricula of our secondary schools that are much to be regretted.

4. Secondary school geography does not give the student a grasp of the natural resources, the industries and the commerce of the world. This condition is, of course, inevitable so long as the geography in the secondary school is almost exclusively physical geography. The training which this phase of the subject, when properly presented, affords is too valuable to be neglected. Especially is this true as applied to our own country.

5. Geography in the secondary school does very little as a preparation for the teaching of that phase of the subject which, in the elementary school, receives chief attention. Your committee recognizes the fact that it is not the special function of the high school to prepare its students for any particular occupation or profession. But as the training of children is the most important work in which any one can engage, most important both from the standpoint of the home and the nation; and as a considerable number of teachers is yearly drawn from the ranks of high school graduates, we conceive it to be a part of the function of the high school, until such time as professional training for the work of teaching is universally required, to give its graduates such work as will best fit them for teaching, provided that it is at the same time of great value to the many who will not teach.

We do not imply that a good course in physical geography does nothing toward preparing the graduate of the secondary school to teach in the grades, but it omits those phases of the work essential in the elementary school, and which are at the same time of most importance to the average member of society.

6. Secondary school geography, as at present constituted, can not give the student that knowledge of the regions and peoples of the world which intelligent participation in the affairs of life requires. If broadly interpreted, this encompasses all of its weaknesses. By its very nature high school geography places a handicap upon the student who tries to do advanced work in the subject. The lack of a knowledge of place relations, and of regional geography in a broad sense, is a weakness so universally shown by students in the entering classes of both normal schools and colleges as almost to discourage teachers of geography in

those institutions. It is this knowledge which the average person, no matter in what walk of life, most needs. The farmer, the fruit grower, the stockman, the miner, the promoter of railroads or waterways, the manufacturer, the shipper, the fisherman, the artisan, the health seeker and the traveler all feel its need daily. We can not read with intelligence the daily papers and the periodicals, not to mention history and literature, without some considerable knowledge of regional geography.

We present the following as essentials of a course in geography for secondary schools:

1. Those parts of mathematical geography which show most clearly how human life is influenced by the relations between the earth and other members of the solar system. Such points as the arrangement of the mathematical and heat zones and the varying boundaries of the latter; the change of seasons; latitude and longitude; standard time and the International Date Line are important. Facts as to the size of the members of the solar system, their distances from the earth or sun, and their periods of rotation and revolution are not considered essentials.

2. First in importance among the factors influencing life is climate. Therefore, atmospheric phenomena should receive careful attention. The principles should be applied as fully as time and the ability of the students permit. The topics which should receive chief attention are the following: (*a*) The conditions determining the temperature, pressure and humidity of the atmosphere. (*b*) The great atmospheric movements. (*c*) Storms, especially temperate latitude cyclones, studied by means of the weather maps, and their relations to crops, floods and transportation. (*d*) Precipitation; its causes and distribution; and its influence upon occupations and habits of life generally. (*e*) Weather changes, such as the effect of unseasonable frosts upon crops, and the efforts of man to prevent the damage. The influence of blizzards upon stock on the western ranges, and telegraph and railroad business in many parts of the country. The effects of storms upon wheat, oats, hay and other crops. (*f*) We urge the importance of a study of the work of the Weather Bureau, having students present specific illustrations of the value of its work. Comparatively few realize the multitude of human interests that are advanced through the operations of this bureau.

3. A brief study of the ocean as a modifier of climate, as an agent in the destruction and construction of land forms, as the source of certain commodities, and as a medium for the transmission of the commerce of the world.

A detailed study of ocean depths, of temperatures at various levels, of tides, of the character and distribution of ocean life may well be omitted.

While our texts treat the ocean as a separate division of physical geography, we favor an incidental treatment, with a brief summary. The influence of the ocean upon climate—the topic of chief importance—should be considered in connection with the study of climate. Erosion and sedimentation along shore lines should be treated under those topics. The commodities obtained from the ocean, as well as the commerce which it bears, would naturally receive attention as a part of commercial geography.

4. The larger geographic forms such as plains, plateaus, mountains, valleys, rivers, falls, lakes and glaciers should receive careful study. Human interests and activities are largely confined to the lands, but it is obviously of far greater importance that we should understand our relations to geographic forms than that we should have a thorough knowledge of their evolution, or be able accurately to classify them.

Graduates of secondary schools should know the location of the great plains of the world, and how they are related to the production of food, of occupations, of transportation and the distribution of population. Whether or not these students can name the six or eight classes of plains given in our text-books is a matter of very little importance. Students should understand how certain definite mountains influence climate, the distribution of plant life, human occupation of their areas, the construction of railroads, the use of streams for transportation and the development of water and electric power, how they served as national boundaries and have helped to mold national characteristics. The ability to name the different types of mountains, and to classify faults and folds is of little value to the average person, however. In other words, it is the human point of view that is important as applied to every topic.

Students should be encouraged to discover human response to its environment in the home area, as this gives reality to the subject and prepares them to work out and appreciate these relations in remote areas.

The amount of emphasis placed upon the study of the various geographic forms and processes will depend, in part, upon the location of the individual school. A school situated in a mountainous region would very properly devote more time to the consideration of the influence of mountains upon life than would one in the prairie section. In the first-named area the relation which mountains bear to climate, industries,

settlement, and road building are relatively of greater importance than in the second, because they are at hand and are therefore more meaningful.

5. A study of the larger features of the resources of our country, such as its soils, waterways, water powers, forests and mineral wealth. These features of our geographic environment are so vitally connected with the daily life of every individual, as well as with our national progress, that ignorance of them is a serious matter.

This study should show the distribution of the resources, their accessibility, their relation to road building, to distribution of population, to development of industries, to location and growth of cities, to commerce, and to social conditions. The work of our government in modifying geographic environment should receive careful consideration. Our government is expending vast sums of money in carrying on soil surveys, in improving plants and animals, in reclaiming desert and swamp lands, in the preservation and extension of forests, in developing waterways and harbors. These are subjects upon which every man and woman should be informed from the geographic point of view. The value of such work in the molding of useful members of society is certainly very great.

6. A knowledge of the general geography of the most important countries and peoples of the world.

The grasp of regional geography obtained in the elementary school is necessarily very meager. Geography is quite generally discontinued in the seventh grade, and, as has been stated, practically no attention is given to regional geography in the high school. A knowledge of the geography of our own country and of Europe is a much-to-be-desired factor in good citizenship. A somewhat detailed study of these two regions would incidentally put the student in possession of considerable knowledge of the other continents. In addition to this he would gain a "geographic consciousness" that would be of great value.

If it be true that a large part of the education of the average individual comes through reading, then it is of the utmost importance that we should be able to read intelligently. This, in the fullest sense, is impossible unless one's knowledge of geography is wider than that offered by the present high school course in this subject.

7. Some conception of how the history of nations has been shaped by geographic conditions.

We do not forget that this should be a vital part of all courses in history, but it should also receive very definite attention in secondary

school geography. All nations afford illustrations of this, some more than others. That our own country is a fruitful field is evidenced by such works as Brigham's *Geographic Influences in American History,* and Miss Semple's *American History and Its Geographic Conditions.*

8. The ability to trace, in the large, the relationships between the most important geographic forms and geographic processes, and to appreciate the responses which human life everywhere makes to its physical surroundings.

Only as the student has observed the results of geographic processes on a small scale can he have any definite conception of the evolution of larger and distant geographic forms. When the student appreciates the significance of human response in the vicinity of his home, he has laid the foundations for the discovery and interpretation of this response in remote areas. Moreover, this training will furnish some basis for seeing in advance the general trend of the geographic development of a new region.

In order to make it possible to present the essentials as herein outlined, your committee makes the following recommendations:

1. Geography, touching as it does the daily life of every individual at so many points, should be, in some form, a required subject in all secondary schools.

Sixteen years ago the Committee of Ten recommended that physical geography be required in all high school courses. While we recognize the importance of physical geography, we feel that this is too restricted a view, and that, as already pointed out, it does not include those phases of geography which are of greatest value to the average individual.

2. The subject should be pursued for not less than one year.

While more than one year is very desirable, we feel that through careful selection of topics and the elimination of unimportant details, very much can be accomplished in the time stated.

3. The subject should be presented during the first year of the high school course.

Such an arrangement will connect the work with that of the elementary school with the least possible break in time. It will also help the student in such work as he may take in history, literature, economics, geology and meteorology. A third advantage is that it will reach a larger number of students than it will if presented later in the course.

4. There should be at least five recitation periods per week.

5. About one-fourth of the total time should be devoted to laboratory and field work. This should by no means be confined to the study of

physical geography. Much laboratory work and some excursions should be undertaken in connection with the commercial phase of the subject, and there should be carefully planned exercises based upon maps and models.

We recommend that about one half-year be devoted to the larger topics in physical geography, with the human side made more prominent than at present, and that the remainder of the year be given to a study of North America and Europe.

Such a course would give our students some considerable knowledge of the geography of the most important countries of the world, and incidentally much useful information, as applied to other areas, would be acquired.

The chief difficulties that stand in the way of putting such a course into operation are two: first, time-honored custom, and second, the lack of text-books that meet the requirements. We believe that careful consideration of the subject from all points of view will remove the first, while the publishers will provide us with the necessary texts almost as soon as we declare ourselves ready for them. In the meantime, the first part of the course can be carried on by means of selected portions of our physical and commercial geographies, numerous government publications, and periodical literature.

The work of your committee has been carried on under great difficulties. Its members live in widely separated parts of our country and hence there has been no opportunity for conference. While we are not unanimously agreed upon every point herein mentioned, we find ourselves in hearty agreement on the report as a whole. If the conclusions here reached are pointed in the right direction, and shall help to bring out a more fruitful study of one of the most practical as well as one of the most broadening and humanizing of subjects, we shall have been well repaid.

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THE LABORATORIES FOR PHYSICAL GEOGRAPHY IN TWO CALIFORNIA HIGH SCHOOLS

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THE principal articles of furniture in the laboratory for physical geography in the Redlands, California, High School are the students' tables, the teacher's cabinet table, the specimen case and the map case. The pupils' tables are 36 inches high, 48 inches wide, and 12 feet long. If floor space permits, twice as many tables, each 6 feet long,

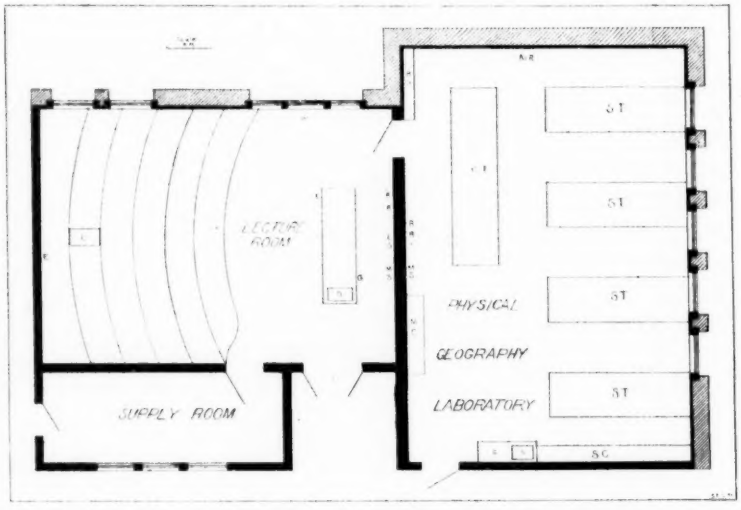

Fig. 1. Floor plan. Explanation of symbols: BB, blackboard. BS, book shelves. CT, cabinet table for the teacher (see also Figs. 2 and 3). E, electricity. G, gas. L, lantern. LS, lantern screen. MC, map case. MR, map rail (see also Fig. 3). MS, maps suspended from ceiling. S, sink. SC, specimen case. ST, students' tables. W, windows with double opaque shades running in deep pockets at the sides.

are preferable. Often it is an advantage for pupils to work in pairs, therefore an even, not an odd, number should sit on each side of the table. The knee space is 18 inches wide (Fig. 3). Five drawers with combination locks are at the right of each knee space. This arrangement I think can hardly be improved upon. The stools are 24 inches high. The table tops are colored a dead black.

In the cabinet table the drawers are of different sizes. The large drawers are 48 x 48 x 6 inches. They receive the charts of the U. S. Coast and Geodetic Survey, pilot charts from the Hydrographic Office, and other large charts and maps which are to lie flat. The small drawers are 25 x 22 x 5 inches (inside), and receive the climatic charts of the U. S. Weather Bureau, and the daily weather maps from Washington. A drawer 22 x 22 x 5 inches (inside) will receive the topographic maps and folios of the U. S. Geological Survey. These drawers may be divided into small com-

FIG. 2. General view of laboratory

partments by removable wooden partitions for receiving specimens of minerals, rocks and soils. (Fig. 3.) Some teachers prefer a shallower drawer, but 5 inches is not too deep for mineral specimens.

The specimen case (Fig. 2) has glass doors and adjustable shelves in the upper part. The higher shelves are slanting toward the front. There is a large closed cupboard space below for receiving pupils' globes and other necessary apparatus.

The map case has horizontal shelves with doors at each end. Maps are rolled and thrust in from the end. Maps are also suspended from the ceiling. These are mounted on spring rollers or are rolled up by small ropes running over pulleys like a drop curtain. The laboratory has map rails of soft pine on all sides except one. These are 72 and 92 inches from

the floor. Small maps may be hung temporarily from these by thumb tacks, or by gummed cloth suspension rings. A uniform distance between suspension rings should be adopted, and nails or hooks placed in map rails accordingly. A wire may be tightly stretched, and small maps suspended from it by means of clothes-pins.

A picture moulding surrounds the laboratory. Relief models, relief maps on spring rollers in a case, and an eight-foot blackboard are located at convenient places on the walls. Book shelves contain necessary reference

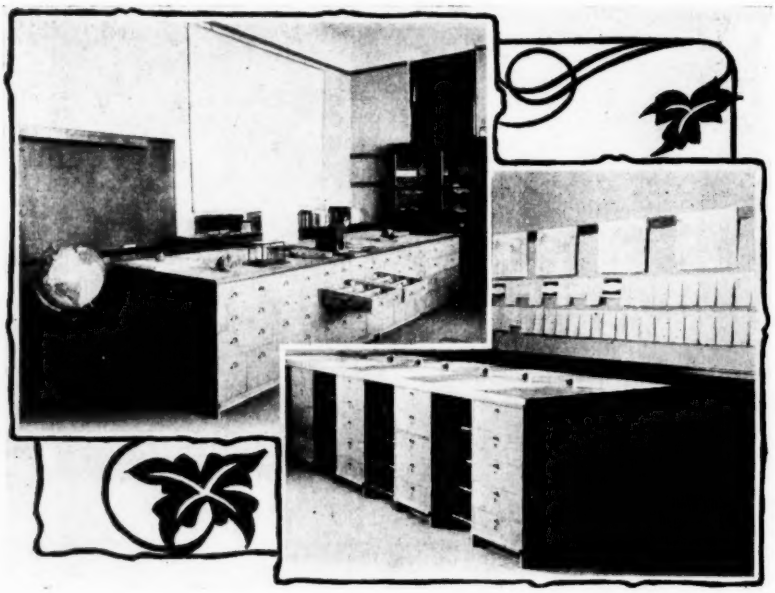

FIG. 3. Students' work table and teacher's cabinet table

books. Abundant floor space is left for dictionary stand, large globe, and a trundling blackboard outline map. The laboratory has gas, water and sink at one side. A stopper is to be preferred to a strainer in the outlet of the sink. A double faucet for water is often a great advantage.

In the lecture room the seats are arranged in tiers with eight-inch riser. This room should seat twice as many pupils as are accommodated at one time in the laboratory, so that with double periods classes may be consolidated for occasional full period illustrated lessons. The windows all have double opaque shades running in pockets on the sides. The lantern

has a place in the rear of the room. A permanent screen above the blackboard in front of the class is made of hard, smooth-finished, white plaster. The teacher's table in this room contains water (double faucet), sink, gas, and electricity. The lantern is transferred to the teacher's table for experiments in light. Closed cases near the teacher's table for demonstration apparatus to be used in class exercises are more convenient than a separate supply room.

In the recitation room the lantern should be supported upon a table with drawers for the slides. These drawers should be divided into compartments wide enough to admit slides on edge like cards in a card index, upright, so they may be seen without turning them over. Heavy guide cards may be used to indicate the subjects.

In the basement is a wet laboratory with a cement floor and a large depressed area which collects waste water used in erosion experiments. The outlet of this basin is through an upright pipe which prevents solids from being washed into the sewer. This upright pipe has holes in the sides at regular intervals, which may be stopped or opened at pleasure, thus allowing the water to stand successively at different levels, producing terraces, etc. This basin also serves as a lake in which deltas may be formed.

In the John C. Fremont High School there is a space on the roof large enough to accommodate a large class. This affords an excellent place from which to view the landscape in all directions and discuss the larger features of the local topography. It affords an ideal place for the exposure of meteorological instruments. Here also our meridian may be established by observations of the heavenly bodies. Observations of the positions and movements of the sun may be made and the apparatus left here throughout the year if necessary without being disturbed by passers-by. In building such a roof space, ample stairways and corridors well lighted for night use ought to be provided.

In this school the pupils work tables in the laboratory are supplied with uprights and cross bars after the fashion of the usual physics laboratory. From the cross bars maps are suspended for the use of the pupils. When small maps are used, such as the daily weather maps and the topographic maps of the United States Geological Survey, they are suspended by clothespins from wires stretched tightly between the uprights. This saves the maps from being "dog eared," crumpled, and soiled by careless pupils.

A bulletin board in the laboratory is kept well supplied by the pupils and teacher with clippings from the current papers and magazines.

We are just now introducing the use of stereographs in the classes in

physical geography. A cabinet for storing the scopes when not in use will be a necessity. The views will be stored card-index fashion with dummies in the proper places to refer to views which illustrate more than one subject. Guide cards extending above the height of the stereographs will contain the names of the subjects treated.

Probably the most common mistake made by those building a laboratory for physical geography is to allow entirely too small a space for cabinet cases and for the storage of materials and supplies. A museum case is of more than double value if in the room where pupils work instead of being in a separate museum. Materials stored in the laboratory rather than in an adjacent room will save the teacher many unnecessary steps. Unless wall space is well planned and carefully economized the teacher will soon be at a loss to know where to put wall maps, charts and relief models. It is well to mount relief models in such a way as to permit their ready removal. A relief model is not fully appreciated until it is seen in a horizontal position with the observer approximately on the horizon.

Harvard Geographical Conference.—The third annual geographical conference at Harvard University was held in the geographical laboratory, University Museum, Cambridge, on Saturday, May 29, and attended by over forty teachers and advanced students, including representatives of normal schools in Boston, Bridgewater, Salem, Worcester and Providence, Milton Academy, Institute of Technology and Harvard. Professor Davis gave a brief account of the international geographical excursion that he conducted through northern Italy and southeastern France during seven weeks of June and July, 1908, stating the plan of work and briefly describing some of the localities visited. Proposals regarding the teaching of geography in secondary schools, as published recently by Professor Dodge of Teachers College in this journal were discussed. Professor Johnson exhibited a number of outline memory maps of the world and of several continents, drawn on different projections by grammar-school pupils, the outlines being guided by a moderate number of points of which the latitude and longitude had been memorized; a special value of the method is found in its being applicable to any kind of projection. An excursion to the coastal plain of Maine, between Portland and Brunswick, was planned for the latter part of June. Professor Woodworth invited the conference to inspect the Harvard Seismological Station, and showed some of its records. At noon, twenty members of the conference lunched together at the Colonial Club, near the museum, and continued their discussions in the afternoon.

W. M. D.

ORIENTATION OF MAPS

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I have read with interest the article by Dr. Gulliver on this topic in the November, 1908, number of this journal. I have, however, been at a loss to know just what it is that Dr. Gulliver proposes as a remedy. The two sentences which are most definite and suggestive in the way of a reform of some kind are the following: "If the north point on *all* maps were *always* placed at the top of the page (the italics are mine) much less difficulty would be experienced in teaching pupils to realize clearly that a map represents a certain definite portion of the surface of the earth." . . . "It would, therefore, be a great saving to the business interests of the world if *all* schools taught geography with maps which were *universally* oriented with the central meridian parallel to the right and left hand sides of the page."

From the above quotations and the tenor of the whole article, if I have read it correctly, it would seem that the chief difficulty pupils find in interpreting maps is inherent in the map itself. This is diametrically opposed to what the writer's experience had led him to believe was the difficulty. He had always supposed that the ignorance which prevails in this particular was due to the inadequate preparation of teachers in geography and the poor pedagogy employed by them in teaching the map.

Whether the maps or the methods employed in teaching them should be changed depends upon the demands and uses that have determined the development of maps. If they have developed in response to conditions prescribed by the elementary school there might be some logic in asking that maps be so changed or only such kinds be used as will more adequately meet the needs of the school. If, however, maps have uses beyond the school and have developed in response to conditions and demands arising in the commercial and industrial world, then it is the business of the schools so to teach maps that pupils can interpret them whether north be at the top, bottom or center of the page. We can not have one sort of maps for the schools and another for the business world.

One of the greatest difficulties that the writer has met in teaching maps to normal school students is the almost universal notion they bring with them from the grades and high school that the top of the map is north, bottom south, etc. This usually means to the student that a line on the map parallel to the sides of the page is a north and south line. The difficulty arises as every teacher should know, not from the fact that "the

north point is not at the top of the page" or that the central meridian is not parallel to the sides of the page, but because pupils have never been taught that there are direction symbols on every map and that these symbols are the meridians and parallels. If we could abolish the use in schools of the expressions "top of the map is north," "up" for north, and "down" for south, substituting the ideas that "meridians on the map are north and south lines" and "parallels, the east and west lines," it would go far towards enabling pupils to orient any map.

Would Dr. Gulliver abolish all polar projections in the schools? If he could do so there, he could not do so outside of the schools, and unless he can make his reform universal, how will his suggestions, if carried out in the schools, help the pupil to interpret maps as an adult out of school? Why also would he have "all schools teach geography with maps which are universally oriented with the central meridian parallel to the right and left hand sides of the page?" On most existing maps the central meridian does not indicate directions for the whole map. How would he have the other meridians drawn? If parallel to the central meridian then his map would be useless for many purposes and many regions. If not parallel to the central meridian, then why orient with the central more than any other meridian when all meridians trend north and south? If conditions in New England are similar to those in Michigan, what they need there, as what we need here, is not a new sort of map projection or limitations as to the kind that are to be permitted in the schools but teachers who are prepared to teach and use existing maps. The writer's inability to appreciate the force of Dr. Gulliver's suggestions must arise from the different conditions that exist in the two sections of the country. This must be the case, for Dr. Gulliver tells us that he has studied "present conditions in the elementary schools," and in the third paragraph of his article assures us that "children are taught their letters and are then taught to read words on the printed page." If there are as great differences between the methods of teaching geography in the East and the Middle West as there evidently are in the teaching of primary reading, there is probably no common ground for discussion of the question.

The map is not a picture of a portion of the earth's surface any more than the word *cat* is a picture of that animal. If the pupil must be taught to read the latter, he must likewise be taught to interpret the former. The first step in the teaching of the map is, therefore, to lead the pupils to grasp the map idea; viz., the representation of geographic features by means of symbols which have little resemblance to those features. This

can best be done by making a map of some area so well known to the pupils that they can easily invent appropriate symbols for the various features. If this introduction be followed by the practice of teaching features before their symbols are encountered upon the map, pupils will have little difficulty in this phase of maps interpretation.

The fundamental purpose of the map is to represent the location of places upon the earth. To do this three conditions are necessary: (1) fixed directions, (2) fixed lines from which to measure and (3) fixed units of measurement. Directions, latitude and longitude and positions of places upon the earth can best be shown upon the globe. There is great need in the teaching of geography that between the study of local or home geography and the study of distant regions there be introduced a more rational and more extensive study of the globe than is commonly done. This is the simplest means of studying ideas that are too complex and difficult to be understood without some such material aid to the imagination. In this globe study the pupil may be made to understand how fixed directions, fixed lines from which to measure, and certain units of measurement are necessary and possible because we live upon a rotating spherical earth. Sufficient drill should be given in latitude and longitude to enable the pupils to locate places on the globe when their latitudes and longitudes are given. Emphasis should be placed upon the fact that the meridians and parallels are first of all direction lines, and that two places are north and south or east and west from each other only when they are on the same meridian or parallel.

When the pupil has made such a study of the globe and can name and locate the various continents and oceans, there ought not to be much difficulty in making the transition from the curved surface of the globe to the flat surface of the map. The important thing to be remembered in connection with the map as well as the globe is that the meridians are north and south lines and the parallels east and west lines. If these facts be kept constantly before the pupils there ought to be no difficulty in orienting the ordinary map.

So long as we have uses for maps we shall have uses for most of the projections that have been devised. While we can not hope to give grade pupils a mathematical conception of how these projections are derived, where correct or where distorted, yet it is perfectly possible so to teach the map that such fundamental concepts as direction, latitude, longitude and scale may be comprehended and used in interpreting any map. Let us do this and not attempt to limit the use of maps in the schools to some one or two projections.

ECONOMIC NOTES

By E. Van Dyke Robinson

THE Manchester Ship Canal has now been deepened to twenty-eight feet and lines of steamships have been established from the port of Manchester to various ports of the world where Manchester has interests.

In Alaska the railway situation is becoming a little clearer. On the Seward Peninsula are two railways, one running from Nome back about one hundred miles, the other a standard gauge line, "The Council City and Solomon," which extends inland some thirty miles. These are of importance chiefly for transportation of mining supplies.

Another road of a similar character is the Tanana Mines Railway, running from the head of deep-water navigation on the Tanana to some important mining districts near Fairbanks.

Of a more general interest are two railways which have been undertaken from the southern coast across the mountains to the basin of the Yukon. One of these, The Alaskan Central, is now in a receiver's hands after completing some fifty miles of line. It is said to have the best ice-free port on the south coast of Alaska at Seward, and is intended to reach the Matanuska coal fields. The other road from the south coast is The Copper River and Northwestern, which is building from Cordova Bay eastward to the Bering coal fields and also up the Copper River. Being backed by the copper smelting interests, it seems to have abundance of capital.

If half that has been reported concerning the extension of orange culture in Cuba is true, that island is likely to become, in the near future, the most important source of oranges for the United States. However, the difficulty of transportation, especially from the plantation to the steamship, still remains to be overcome.

The contract of the Canadian Government with the Grand Trunk Pacific Railroad, by which the latter bound itself to divert as much trade as possible from Portland to St. John, N. B., seems already to be bearing fruit in the large increase of winter traffic from that port. The Canadian Government is also moving energetically in other directions to provide for transportation facilities. The channel to Montreal has been deepened to thirty feet.

A railway has been made and a large map published showing the route of the proposed Georgian Bay Canal, and another report has

appeared on the survey for a railway through to York or to Churchill on Hudson Bay. In this connection it is interesting to note that a flouring mill of the best type has been established at Fort Vermilion, four hundred miles north of Edmonton.

Another event of some importance is the construction of a canal around the rapids of the Red River which is intended to give unobstructed navigation from Winnipeg to the upper end of Lake Winnipeg.

It is curious that while Winnipeg corresponds in position to Chicago, since the railways from the West and Northwest are obliged to go through the narrow gap between Lake Winnipeg and Lake Superior, yet the city does not stand upon the lake. The explanation is that the navigable waterways furnished by the rivers were originally of more importance than the lake. Such is perhaps still the case.

The so-called Pan American Railway, which has been under construction from the Tehauntepec line in Mexico eastward, has now reached the frontier of Guatemala. It is reported that work is being begun in Guatemala to establish connection with the Mexican system.

The National Line of Mexico, by which the government railway merger calls itself, has completed a line through to the Pacific port of Manzanillo and has entered into a contract to build a portion of the line between Durango and Mazatlan. The Manzanillo line forms the second transcontinental route through Mexico.

Another, the Kansas City, Mexico and Orient Line, is being constructed by American capital to the port of Topolobarnpo. The Mexican Government has entered into negotiations with Japan for the establishment of a steamship line between Yokohama and Salina Cruz, the Pacific terminus of its Tehauntepec line.

It is again reported that the missing link in the road from Port Limon in Costa Rica in the Pacific is about to be completed. As this link is only eleven miles long and has been missing for at least eleven years, it is to be hoped that in eleven years more it may be completed.

Another country in which there is considerable stir about railroad matters is Salvador. This country, though small, lies on the route of the Pan-American survey through Central America and has become ambitious to complete a portion of that road. In dealing with such matters, however, it must not be forgotten that Central America is the land of to-morrow, and again, to-morrow.

In Honduras, the American Company has obtained a franchise including land grants for a railway or *truxillo* to the capitol. As banana interests are said to be behind the company, you may possibly look to see the line built within a reasonable time.

In Columbia, which is always prolific in reports of railway franchises that remain on paper, one substantial accomplishment is to be recorded. The railway, leaving the Magdalena River at the head of navigation above the rapids at Girardot, has finally reached the capital Bogatá. This makes possible for the first time the transportation of goods into the interior without the use of pack mules. The route now involves, first, trans-shipment to the ocean steamer; second, a short railway which carries the goods to the navigable Magdalena above the delta; third, shipment up the river to the rapids; fourth, trans-shipment to the railway which goes around the rapids; fifth, shipment by boat to the head of navigation; sixth, the use of the Girardot Railway to Bogatá.

In Brazil, the government has undertaken, in conformity with its treaty obligations, to construct a railway around the Falls of the Madeira River. This is the second attempt, a previous one by an American concern having failed disastrously many years ago.

The distance from the base of supplies, the climate, and the tropical jungles present serious obstacles.

In the last few years, Brazil has exceeded Ecuador as the largest producer of cocoa. The Brazilian Coffee Trust, financed by the government, is still in operation and it appears from the average valuation of coffee at the New York Customhouse that the price of coffee has gone up about fifty per cent. since the trust began its operation.

In China, a second trunk line from the north to the Yangste Kiang Valley has recently been undertaken to connect Tientsien with Nanking. This road will practically parallel the Grand Canal, which is almost useless in its northern portions. Another railway of considerable general interest is the one which the French have been pushing up the Red River from the port Hiapkong. This railway has now reached the Chinese frontier and is intended to go on into the mineral district of Yunnan.

The trade of Tsintau, the port of the German concession, has rapidly developed since the railway reached the Hoang River. It has already

become the principal market for straw braid goods which were formerly shipped from Chefoo.

In India the amount of indigo exported has declined from nearly 9,000,000 pounds in 1902 to 2,180,000 pounds in 1908. This decline is due to the increasing severity of competition with artificial indigo. The indigo planters are said, however, to entertain the hope of saving the industry.

In Ceylon, extensive plantations of camphor trees have recently been set out at elevations of from 2,500 to 8,000 feet. This is an interesting development, especially in view of the fact that artificial camphor is supposed to be a serious competitor of the natural article.

The sensational occurrences in West Asia during the last few years still remain to be explained. In 1906 the Shah of Persia proclaimed a constitution. Think of it, a constitution in the land of Darius and Xerxes! To be sure, he proceeded soon after to cannonade the parliament which he had established, but the idea of a parliament still seems to have some vitality.

More recent and more dramatic, or, at all events, better known to us, is the series of events in Turkey leading to the dethronement of the great assassin Abdul Hamid II. The most reasonable explanation is that Russia, which has always opposed reforms in Turkey and Persia lest they might render those countries stronger and better able to resist her own designs, was forced to throw in her influence with Great Britain, by the fact that Germany was the only power to which the old sultan would listen. The Turkish parliament is interesting, but it remains to be seen what it can accomplish. Certainly, if there is no God but Allah, and Mohammed is his prophet, and the sultan is his vicegerent on earth, there is no room for a parliament.

In this connection it is significant that the Mecca railway has already reached Medina and is being pushed forward with no less feverish haste than before.

NOTES

Round Table Conference—Geography (Chicago Normal School, Jane Perry Cook, *Chairman*).—The subject for discussion by the Geography Round Table for the year 1908-1909 was put in the form of two questions.

(*a*) What is the purpose of the so-called New Geography?

(*b*) What methods and materials are necessary for its proper study?

Upon the first question the members agreed: (*a*) The New Geography contains nothing new in subject matter. Its essential worth consists rather in such a wise arrangement of geographic material that no one plan of geographic study, physical, ontographic, or commercial, shall predominate, but each shall contribute its due promotion to a vital, useful and interesting whole. (*b*) The study of the New Geography should give the children a knowledge of the principles of geography, an ability to use the geographic material at hand, and power to obtain new material.

Upon the second question the following general conclusions were reached:

The study of geography should be approached through the study of the home surroundings.

The ability to read and interpret maps should be gained through the work of platting some area well known to the children.

Since the making of maps by the children is a means of understanding more formal maps and not an end in itself, too finished a product should not be demanded.

Chalk modeling and sand modeling, while useful for purposes of illustration in the hands of a skilful teacher, are not to be emphasized because of the great amount of time they require, and because of the necessary exaggeration they involve.

The study of genetic physical geography has no place in grade work.—*Educational Bi-Monthly*, June, 1909.

The Seventeenth Meeting of German Geographers.—The subject of Geographic Teaching led to a very animated discussion. At the previous meeting at Nuremberg in 1907, the Permanent Commission for the Teaching of Geography had been directed to prepare a detailed memorandum containing suggestions for adequate reforms in the teaching of geography in secondary schools. This memorandum, a book of eighty-three pages, had been sent to the members of the Lübeck meeting before its convention. It contained papers on the importance of geographic training, the aims and methods of geographic instruction, the qualifications and training of teachers of geography.

The essential features of these reform suggestions, as finally summarized in the following way by Professor Penck, met with the unanimous approval of the meeting and were recommended to the consideration of the proper authorities:

"The prospective teacher of geography must have studied the subject for a certain length of time. The minimum amount of time and work necessary to gain a thorough, scientific knowledge must be determined according to the inherent requirements of the subject and the average capacity of the student. No difference must be made in the training of candidates according to the various types of schools in which they are going to teach.

"Without wishing to limit the freedom of combining various subjects with geography the Meeting recommends the study of geography in connection with the natural sciences, especially geology, or with physics and mathematics, or again with history. The purely geographic work should by all means be supplemented by geological lectures, exercises and excursions. But the Meeting leaves it to the department of geography at the various universities to draw up special plans of study.

"The Meeting, therefore, emphatically renews its former demand for a strictly professional training of geography teachers and for the extension of instruction in geography to the upper classes in all types of secondary schools.

"The Meeting does not expect a person who teaches geography to devote his time exclusively to this subject, but it does demand of him competent and thoroughly scientific instruction.

"The Meeting believes the main objects of geographic teaching to be the following:

"1. The acquisition of clear topical conceptions of the conditions of the earth's surface.

"2. A familiarity with the fundamental laws of mathematical geography in so far as necessary for general culture.

"3. A knowledge of the physical and especially of the geological conditions of the earth's surface and an understanding of their mutual relations and causal connections.

"4. An understanding of the interaction of the physical properties of the earth's surface and man's activities.

"5. That measure of geographic knowledge which is necessary to understand the life of the present.

RECENT PUBLICATIONS

THE STATESMAN'S YEAR BOOK FOR 1909: Pp. 1404+lxxvi. Macmillan & Company, London.

The latest edition of the indispensable annual, *The Statesman's Year Book,* as usual contains much new material which has been brought down to March, 1909. "Among the new features are the change of the Congo Free State into a Belgian Colony, owing to its annexation by the Belgian government; the new constitution which has been put into force in Turkey; the annexation of Bosnia and Herzegovina by Austria-Hungary; the independence of Bulgaria; the revised constitution of Sweden; the steps which have been taken towards constitutional government in China; the suspension or abolition of the constitution in Persia; the results of the New Census in Egypt; the new British Protected Malay States. A new section has been added, giving a brief reference to the Hague Tribunal, with a list of its members."

GEOGRAPHEN-KALENDER. Edited by Dr. Hermann Haack; pp. v+734. Gotha, Justus Perthes, 1909.

The latest edition of the *Geographen-Kalender* will be of especial interest to American geographers and teachers of geography because of the long and detailed biography of Professor William Morris Davis from the pen of Professor Brigham. This is printed in both English and German and presents clearly and concisely an account of Professor Davis' life and work which will be more than interesting to all those hundreds, if not thousands, of teachers who have come directly or indirectly under his influence.

The volume also contains the usual chapters devoted to a chronicle of the geographical events of 1908, the summary of the literature for the same period, the deaths of the year and the biennial address list of the geographers of the world.

PRACTICAL EXERCISES IN GEOGRAPHY. B. C. Wallis; pp. xxii+184. Macmillan & Company, London, 1909.

Books devoted to exercises in geography are appearing rapidly, particularly in Britain. Each is suggestive and the one noted above is one of the best that has yet appeared. The exercises are planned for a two-year course and include Measurements, Land Relief and Contours, Climate, Vegetation, Rocks and Minerals, Selected Areas, Transport, and Review Exercises. Although the book is especially adapted to British needs, many of the exercises are practical in our own country. The volume is more than suggestive for teachers in elementary and normal schools.

A GEOGRAPHY OF THE BRITISH ISLES. A. Morley Davies; pp. xi+358.

An excellent and well illustrated volume devoted to the different physical regions of Britain and including many practical exercises. Helpful to teachers dealing with Europe and to teachers of general or regional geography in normal schools.